

REMARKS

This amendment is responsive to the Office Action mailed May 29, 2002 in connection with the above-identified patent application. In that Action, the drawings were objected to because, according to the Examiner, they fail to show necessary textural labels of features or symbols. Claims 55-57, 61-63, and 67-69 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,078,741 to Ma, et al. in view of U.S. Patent No. 5,647,058 to Agrawal, et al. Claims 58, 59, 64, 65, 70, and 71 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ma, et al. in view of Agrawal, et al. and further in view of U.S. Patent No. 6,381,605 to Kothuri, et al. Lastly, claims 60, 66, and 72 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ma, et al. in view of Agrawal, et al. '058 and further in view of U.S. Patent No. 6,094,651 to Agrawal, et al.

The Drawings are in Proper Form:

Applicants have tendered amendments to selected drawing figures in response to the Examiner's objection to the drawings for failing to show necessary textural labels of features or symbols.

It is respectfully submitted that the amended drawings show all of the necessary textural labels of features or symbols as would be needed to better understand the figures without substantial analysis of the detailed specification.

Approval of the amendments to the drawing figures is respectfully requested.

The Present Invention:

For purposes of review, the present invention relates in general to database management systems performed by computers, and in particular, to the creation and use of

an index to access a subject multi-dimensional database. An embodiment of the invention receives an indication of a number of features of the subject multi-dimensional database to be identified and then performs feature identification on the subject multi-dimensional database. An index for accessing the subject multi-dimensional database is created using the identified number of features. The index itself may be a multi-dimensional database.

Essentially, the invention provides a user interface to set up definitions for the subject multi-dimensional database to be mined, dimensions to be mined, measures to be mined, mining technique (i.e., feature identification) parameters, and number of results to be stored. The user interface is able to directly drive a mining run. Additionally, the invention supports traversal of the multi-dimensional database, execution of the mining technique, and generation of result data. In one embodiment, the mining technique scans the subject multi-dimensional database and the result data is used to create an index. Operations for creating and deleting the index are provided as well as for outline definition, data population, cell note creation, and link partition definition. The invention provides capabilities for exploration and visualization of the result data against the subject multi-dimensional database.

Overall, the invention automatically builds the index, along with links to the subject multi-dimensional database. The invention also stores the index data in a spreadsheet data file, so that a spreadsheet user could view a list of deviations in one spreadsheet and link to cells in the subject multi-dimensional database using a linked partition mechanism.

There are many advantages to the invention including its straightforward implementation. Also, the invention does not require any additional functions or

support from the developers of the subject multi-dimensional database, it does not modify the existing subject multi-dimensional database, and it does not store extra data in the subject multi-dimensional database. Extra explanations are selectively stored as cell notes on the index as desired, providing visualization and navigation of the multi-dimensional data. Furthermore, the invention is easily managed and can be applied with any data mining technique that can identify point of interest in a multi-dimensional database (i.e., a feature identification technique). The infrastructure of the invention supports plug-in techniques and can extend the solution beyond deviation detection.

U.S. Patent No. 6,078,741 to Ma, et al.:

U.S. Patent No. 6,078,741 to Ma, et al. teaches a method and apparatus for automatic generation of reconfiguration scripts for telecommunication devices. Generally, the Ma, et al. disclosure relates to the field of telecommunications and, more specifically, to reconfiguration of a network of telecommunication devices. The Ma, et al. '741 patent provides an automated reconfiguration approach that leverages the modeling and emulation techniques disclosed in prior U.S. Patent No. 5,594,792.

A reconfiguration script generator 10 automatically generates reconfiguration script 12 for telecommunication devices of a telecommunication system. The reconfiguration script 12 comprises directly executable configuration commands for deleting/adding features of telecommunication devices, as well as deleting/adding the telecommunication devices from/to the telecommunication system.

The reconfiguration script 12 is generated based on a current configuration descriptive image 15 and a target configuration descriptive image 16. The current configuration descriptive image 14 specifies the devices and

their features included in the current configuration of the telecommunication system. The target configuration descriptive image 16, however, specifies the devices and their features included in the target configuration of the telecommunication system.

As described at column 6, lines 10-20 of the Ma, et al. '741 patent, "features" in the current/target configuration descriptive image include such items as three-way conferencing (3WC). Also, column 5, lines 40-45 describe button functions of telecommunication devices such as telephone sets or the like and their "features" (i.e., their functionality).

U.S. Patent No. 6,078,741 to Ma, et al. is Unavailable as a Reference Because it is Non-Analogous Art

To rely on a reference under 35 U.S.C. § 103, it must be analogous prior art (MPEP § 2141.01(a)). Applicants respectfully submit that the Ma, et al. '741 patent is non-analogous prior art and, accordingly, is unavailable as a reference.

In order to rely on a reference as a basis for rejection of an applicants' invention, the reference must either be in the field of applicants' endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

To the above, applicants respectfully submit that the Ma, et al. '741 patent is not in the field of applicants' endeavor. More particularly, as clearly set forth at the top of column 1 in the '741 patent, the invention relates to the field of telecommunications. More particularly, the Ma, et al. '741 patent relates to reconfiguration of a network of telecommunication devices.

On the other hand, the present invention relates to database management systems performed by computers and, in

particular, to using indexes in connection with accessing a multi-dimensional database. As noted above, one of the many advantages of the invention is that the index created enables quick and easy access to a subject multi-dimensional database without requiring modification to the existing subject multi-dimensional database. The preferred embodiment of the invention builds an index for accessing the multi-dimensional database without modifying the multi-dimensional database.

The Ma, et al. '741 patent, on the other hand, provides an automated approach to reconfiguring telecommunication devices using a reconfiguration script generator, a current configuration descriptive image, and a target configuration descriptive image of the telecommunication system.

For at least the above reasons, applicants respectfully submit that the Ma, et al. '741 patent is not in the field of applicants' endeavor.

Next, applicant's respectfully submit that the Ma, et al. '741 patent is not reasonably pertinent to the particular problem with which the inventors were concerned. More particularly, as noted on page 3 at line 5 of the instant application, inventors were faced with a need in the art for an improved technique for accessing data in a multi-dimensional database. To overcome this limitation, the present invention discloses a method, apparatus, and article of manufacture for using an index to access a subject multi-dimensional database. A selected number of features are identified in the subject multi-dimensional database. Based on the identified features, an index is created for the subject multi-dimensional database, wherein the index may comprise another database.

On the other hand, the particular problem faced by the inventors in the Ma, et al. '741 patent was to provide an automated approach to reconfiguring telecommunication devices and, in particular, to providing an approach suitable for

leveraging on prior telecommunication system modeling and emulation techniques.

The problems faced by the respective inventors were really quite different.

Lastly, a reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem. *In re Clay*, 966 Fed.2d, 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992).

Applicants respectfully submit that the matters with which the Ma, et al. '741 patent deal would not logically have commended themselves to the attention of the inventors of the instant application in considering their problem. More particularly, the matter of reconfiguring telecommunication devices using a reconfiguration script generator, a current configuration descriptive image, and a target configuration descriptive image of the telecommunication system would not have logically commended itself to the inventors' attention in the subject application in considering the problem of the need in the art for an improved technique for accessing data in a multi-dimensional database. The solution in the instant application performs a feature identification on a subject multi-dimensional database to identify an indicated number of features and creates an index for the subject multi-dimensional database using the identified number of features. The matter with which the Ma, et al. 741 patent deals, namely reconfiguring telecommunication devices, would not logically have commended itself to the inventor's attention.

For at least the above reasons, applicants respectfully submit that the Ma, et al. '741 teaching is not reasonably pertinent to the particular problem which the inventors were concerned.

Thus, the Ma, et al. '741 patent is unavailable as a reference because it is non-analogous art.

All Pending Claims are Patentably Distinct and Unobvious Over the References of Record:

Claims 55-57, 61-63, and 67-69 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ma, et al. '741 in view of Agrawal, et al. '058. With regard to claims 55, 57, 61, 63, 67, and 69, the Examiner took the position that the Ma, et al. '741 patent teaches a method, apparatus, and article of manufacture for accessing a subject multi-dimensional database stored on a data store connected to a computer comprising receiving an indication of a number of features to be identified and performing feature identification to identify the indicated number of features.

Without conceding that the Ma, et al. '741 patent is available as a reference, applicants respectfully disagree with the Examiner's position.

More particularly, applicants respectfully submit that the Ma, et al. '741 patent does not teach, suggest, or fairly disclose a method of accessing a subject multi-dimensional database at all. Simply, a reconfiguration script generator 10 automatically generates reconfiguration script 12 based on a current configuration descriptive image 14 and a target descriptive image 16 provided to the reconfiguration script generator 10.

Further, the Ma, et al. patent does not teach, suggest, or fairly disclose the step of receiving an indication of a number of features to be identified. As noted above, the Ma, et al. '741 patent provides a reconfiguration script generator for automatically generating reconfiguration script for telecommunication devices of a telecommunication system. In that sense, the "feature field 40" identified by the Examiner is simply a fragment of a data structure 32 provided for identifying one or both of a

current configuration descriptive image and a target configuration descriptive image. The "feature" information relates to functionality of telecommunication devices such as, three-way conferencing (3WC) and buttons in telephone stations.

In order to clarify the above point, applicants have tendered an amendment to independent claim 55 to recite the step of receiving an indication of a number of features of said subject multi-dimensional database to be identified. This amendment was not made for purposes of patentability but, rather, simply to clarify the context and therefore definition of the expression "features" which word also appears in the Ma, et al. '741 patent but in a completely different context.

Applicants further respectfully submit that the Ma, et al. patent does not teach, suggest, or fairly disclose the step of performing feature identification to identify the indicated number of features. As described in the present invention beginning at line 10 on page 12, an index system provides a user interface to gather parameters for a feature identification phase. The parameters collected are listed on page 12 of the instant application. Among these parameters, a feature identification technique parameter is used to collect information identifying a particular feature identification technique to be used and additional parameter information for that technique. Further, a limit parameter is used to collect a limit on the number of features to locate using the feature identification technique.

In the next phase, as described at line 9 on page 13, once parameter information is collected, the index system launches feature identification software which connects to the subject multi-dimensional database, extracts the data specified by the scope, and passes it on to the feature identification software.

Again, applicants respectfully submit that the Ma,

et al. patent does not teach, suggest, or fairly disclose performing feature identification to identify an indicated number of features of a multi-dimensional database. Instead, the "feature field 40" of the Ma, et al. patent is simply for inputting parameters relating to a one or both of a current configuration descriptive image and a target configuration descriptive image.

Applicants agree with the Examiner that the Ma, et al. patent does not teach a step of creating an index for a subject multi-dimensional database using identified features.

Independent claim 55 recites a method of accessing a subject multi-dimensional database stored on a data store connected to a computer, comprising receiving an indication of a number of features of said subject multi-dimensional database to be identified; performing feature identification to identify the indicated number of features; and creating an index for the subject multi-dimensional database using the identified number of features. As argued above, the Ma, et al. '741 patent does not teach, suggest, or fairly disclose any of the receiving, performing, or creating steps set out in independent claim 55. Applicants carefully consider the secondary reference cited by the Examiner and submit that these limitations are not taught in those patents. Claims 56-60 depend from claim 55 and include these limitations.

In addition to the above, as noted, the Ma, et al. '741 patent is not available as a reference because it is directed to non-analogous prior art.

For at least the above reasons, applicants respectfully submit that independent claim 55 and claims 56-60 dependent therefrom are patentably distinct and unobvious in view of the references of record.

Independent claim 61 is directed to an apparatus for accessing a subject multi-dimensional database, comprising a computer having a data store coupled thereto, wherein the data store stores a subject multi-dimensional

database; and one or more computer programs, performed by the computer, for receiving an indication of a number of features to be identified, performing feature identification on the multi-dimensional database to identify the indicated number of features, and creating an index for the subject multi-dimensional database using the identified number of features.

As noted above, the Ma, et al. '741 patent does not teach, suggest, or fairly disclose an apparatus for accessing a multi-dimensional database including a computer and one or more computer programs for receiving an indication of a number of features to be identified, performing feature identification, and creating an index for the subject multi-dimensional database using the identified number of features. Applicants carefully consider the secondary reference cited by the Examiner and submit that these limitations are not taught in those patents.

In addition to the above, as noted, the Ma, et al. '741 patent is unavailable as a reference because it is directed to non-analogous prior art.

For at least the above reasons, it is respectfully submitted that independent claim 61 and claims 62-66 dependent therefrom are patentably distinct and unobvious over the references of record.

Independent claim 67 recites an article of manufacture comprising a program storage medium embodying one or more instructions executable by a computer to access a subject multi-dimensional database comprising receiving an indication of a number of features to be identified, performing feature identification to identify the indicated number of features, and creating an index for the subject multi-dimensional database using the identified number of features.

As noted above, the Ma, et al. '741 patent does not teach, suggest, or fairly disclose an article of manufacture embodying one or more instructions executable by a computer

to receive an indication of a number of features to be identified, perform feature identification to identify the indicated number of features, and create an index for the subject multi-dimensional database using the identified number of features. Applicants carefully consider the secondary reference cited by the Examiner and submit that these limitations are not taught in those patents.

In addition to the above, as noted, the Ma, et al. '741 patent is unavailable as a reference as being directed to non-analogous prior art.

For at least the above reasons, it is respectfully submitted that independent claim 67 and claims 68-72 dependent therefrom are patentably distinct and unobvious in view of the art of record.

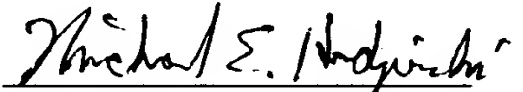
Conclusion

In view of the above amendments, comments, and arguments presented, applicants respectfully submit that all pending claims are patentably distinct and unobvious over the references of record.

Allowance of all claims and early notice to that effect is respectfully requested.

Respectfully submitted,

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Attachment: Version with Markings to Show Changes Made.

MARKED-UP VERSION OF THE AMENDED SPECIFICATION

August 29, 2002

IN THE SPECIFICATION:

On page 1 in line 6, please delete "--/---,---", and substitute therefor --09/565,132--.

Application No. [--/---,---] 09/565,132, entitled "NAVIGATING AN INDEX TO ACCESS A SUBJECT MULTI-DIMENSIONAL DATABASE," filed on same date herewith, by William E. Malloy, et al., attorney's docket number STL000032US1, which is incorporated by reference herein.

MARKED-UP VERSION OF THE AMENDED CLAIMS

August 29, 2002

IN THE CLAIMS:

Please amend claims 55, 56, 57, 58, 59, 60, 61, 65, 67, and 71 as follows:

55. (Amended) A method of accessing a subject multi-dimensional database stored on a data store connected to a computer, comprising:

receiving an indication of a number of features of said subject multi-dimensional database to be identified;

performing feature identification to identify the indicated number of features; and

creating an index for the subject multi-dimensional database using the identified number of features.

56. (Amended) The method of claim 55, wherein creating the index comprises creating a multi-dimensional database that is derived from the subject multi-dimensional database.

57. (Amended) The method of claim 55, wherein receiving the number of features to be identified [is received as] comprises receiving a parameter value.

58. (Amended) The method of claim 55, wherein performing feature identification comprises generating an ordered list of multi-dimensional points.

59. (Amended) The method of claim [55] 58, further comprising creating the index using the list of multi-dimensional points.

60. (Amended) The method of claim 55, wherein creating the index [stores] comprises storing deviation values for

each of the identified number of features.

61. (Amended) An apparatus for accessing a subject multi-dimensional database, comprising:

a computer having a data store coupled thereto, wherein the data store stores a subject multi-dimensional database;
and,

one or more computer programs, performed by the computer, for receiving an indication of a number of features to be identified, performing feature identification on the multi-dimensional database to identify the indicated number of features, and creating an index for the subject multi-dimensional database using the identified number of features.

62. The apparatus of claim 61, wherein the index comprises a multi-dimensional database that is derived from the subject multi-dimensional database.

63. The apparatus of claim 61, wherein the number of features to be identified is received as a parameter value.

64. The apparatus of claim 61, wherein feature identification comprises generating an ordered list of multi-dimensional points.

65. (Amended) The apparatus of claim [61] 64, further comprising creating the index using the list of multi-dimensional points.

66. The apparatus of claim 61, wherein the index stores deviation values for each of the identified number of features.

67. (Amended) An article of manufacture comprising a program storage medium readable by a computer and embodying

one or more instructions executable by the computer to access a subject multi-dimensional database stored on a data store connected to the computer, comprising:

receiving an indication of a number of features to be identified in said multi-dimensional database;

performing feature identification to identify the indicated number of features; and

creating an index for the subject multi-dimensional database using the identified number of features.

68. The article of manufacture of claim 67, wherein the index comprises a multi-dimensional database that is derived from the subject multi-dimensional database.

69. The article of manufacture of claim 67, wherein the number of features to be identified is received as a parameter value.

70. The article of manufacture of claim 67, wherein feature identification comprises generating an ordered list of multi-dimensional points.

71. (Amended) The article of manufacture of claim [67] 70, further comprising creating the index using the list of multi-dimensional points.

72. The article of manufacture of claim 67, wherein the index stores deviation values for each of the identified number of features.